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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,640	12/14/2001	Hiroshi Mase	ZU-406	9733

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EXAMINER	
GILLIAM, BARBARA LEE	
ART UNIT	**PAPER NUMBER**
1752	

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/009,640	MASE ET AL.	
	Examiner	Art Unit	
	Barbara L. Gilliam	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/1/05 & 2/1/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,5,15,17,18,25,26,29,30,33,34,37,39 and 40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,15,18,25,29,30,33,37 and 39* is/are rejected.

7)☒ Claim(s) *5,17,26,34 and 40* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/1/05& 2/28/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 1, 2005 has been entered.

Response to Amendment

2. The amendment filed March 1, 2005 been received and entered in the case.

3. The objection to the claims as being substantially duplicates is overcome in light of the amendment.

4. Claims 2-3, 5, 15, 17-18, 25-26, 29-30, 33-34, 37 and 39-40 are present.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-3, 15, 18, 25, 29, 30, 33, 37 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. It is clear from the specification that a hydrophobic polymer is present in the photosensitive layer, yet Applicant has failed to claim the hydrophobic polymer.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 2-3, 15, 18, 25, 29-30, 33, 37, 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Verschueren et al.

a. In US 6,230,621 B1, Verschueren et al. teach a heat sensitive material for making lithographic printing plates comprising on a lithographic support an image forming layer comprising a hydrophilic binder, a cross-linking agent for the hydrophilic binder, metal oxide particles and dispersed hydrophobic thermoplastic polymer particles (claim 1). The heat sensitive material can further comprise an IR sensitive dye or pigment as a compound capable of converting light into heat (claims 5 and 6). The heat sensitive material is image-wise exposed to heat resulting in an increase in oleophilicity of the exposed area (claim 8 & column 4, lines 53-56). The printing plates of the Examples were imaged with a thermal printer (column 8, lines 16-19) however according to Verschueren et al. the preferred method for image-wise exposure is with a laser operating in the infrared or near-infrared wavelength range of 700-1500 nm

(column 5, lines 1-6). The printing plate of Verschueren et al. is processless, meaning the plate is ready without development and can be mounted on a printing press immediately after exposure (column 5, lines 1-6). In Example 2, the image forming layer of the printing plate comprises TiO_2 as the metal oxide particles, polyvinyl alcohol as the hydrophilic binder, hydrolyzed tetramethoxysilane as the cross-linking agent, polystyrene as the hydrophobic thermoplastic particles and IR-dye of structure I as the compound capable of converting light into heat (page 6, lines 9-46). When the thermoplastic particles are subjected to a temperature above the coagulation temperature of the hydrophobic thermoplastic particles, they coagulate to form a hydrophobic agglomerate in the hydrophilic layer so that at these parts the hydrophilic layer becomes hydrophobic and oleophilic. Coagulation may result from softening or melting of the thermoplastic polymer particles under the influence of heat (column 3, lines 1-23). The image forming layer of Example 2 meets the present limitations for the photosensitive layer.

b. The Examiner asserts the image forming layer of Verschueren et al. inherently has a hydrophilic phase and hydrophobic phase because the hydrophobic components are not soluble in the hydrophilic medium. The hydrophobic polymer is added to the hydrophilic components of the image forming layer in the form of an emulsion and becomes dispersed therein (Example 2).

c. According to the current specification, there are two scenarios in which the photosensitive hydrophilic layer loses hydrophilicity and is changed to ink-receptive when exposed to a light of a wavelength of 750 to 1100 nm. In the first case the hydrophobic polymer phase is mainly foamed and in the second case foaming hardly

takes place. In first case, the gas which causes foaming is presumed to be generated when the polymerizable functional groups of the cross-linking agent contained in the hydrophobic polymer phase remain in the photosensitive layer, and these residual functional groups undergo a reaction or decomposition to thereby generate a gas. In the second case, the hydrophobic phase has thermoplasticity and the hydrophobic particles are melted by heat (page 31, line 1 – page 33, line 16). The image forming system of Verschueren et al., comprising thermoplastic particles which melt or soften upon exposure to imaging heat, is similar to the second case wherein foaming hardly takes place. Verschueren et al. is silent with respect to any gases or foam generated however the image forming layer of Verschueren et al. comprises a cross-linking agent and a hydrophilic binder in addition to the hydrophobic thermoplastic particles like the photosensitive layer of the present application. Therefore the heat-sensitive layer of Verschueren et al. is expected to foam in the same manner as the present application.

9. Claims 2, 15, 18, 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Leon et al.

a. In US 6,190,830 B1, Leon et al. teach an imaging member comprising a support having thereon a hydrophilic imaging layer comprising a hydrophilic heat-sensitive crosslinked vinyl polymer which is thermally switchable. The polymer comprises organoonium groups as repeating units (claim 1). The polymer is rendered more oleophilic upon exposure to heat (column 3, lines 34-46) and is crosslinked by any number of ways, preferably by the reaction of an amine-containing pendant group with a difunctional or trifunctional additive (column 7, line 20 – column 8, line 3). In

Example 1, heat sensitive polymer 2 was mixed with a carbon dispersion and a bis(vinylsulfonyl)methane aqueous solution (crosslinker), coated on a substrate, dried and subsequently imaged with laser having a wavelength of 830 nm (column 14, line 63 – column 15, line 22). The printing plate of Leon et al. meets the present limitations for the lithographic printing plate wherein the heat-sensitive vinyl polymer meets the present limitations for the hydrophilic polymer, the carbon dispersion meets the limitations for the light absorbing compound and the bis(vinylsulfonyl)methane aqueous dispersion meets the limitations for the cross-linking agent.

b. It is clear from the teachings of Leon et al. that a hydrophilic phase and hydrophobic phase are present in the image forming layer taught therein. The image forming layer is a hydrophilic layer containing the hydrophilic heat-sensitive polymer comprising organoonium groups. The cross-linking agent, added to the other components of the layer via aqueous dispersion, forms the hydrophobic phase (Examples). It is noted that the crosslinker of Leon et al. is not a polymer. However it is not clear if the hydrophobic phase of the present invention contains an actual polymer. See paragraph 7a.

c. According to the current specification, the gas which causes foaming is presumed to be generated when the polymerizable functional groups of the cross-linking agent contained in the hydrophobic polymer phase remain in the photosensitive layer, and these residual functional groups undergo a reaction or decomposition to thereby generate a gas (page 32, line 19 – page 33, line 31). Leon et al. is silent with respect to any gases or foam generated however the image forming layer of Leon et al. has the same components as the photosensitive layer of the present application, specifically the

cross-linking agent and the hydrophilic binder. Therefore the image forming layer of Leon et al. is expected to foam in the same manner as the present application.

10. Claims 2, 15, 18, 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Damme et al.

a. In US 6,096,471, Van Damme et al. teach a heat-sensitive imaging element for providing a lithographic printing plate, comprising a support and a heat switchable image forming top layer comprising a hardened hydrophilic binder and a heat switchable polymer wherein this layer or a layer adjacent thereto comprises a compound capable of converting light into heat. The heat switchable polymer contains aryldiazosulphonate units (claim 1), which is hydrophilic before heating and becomes hydrophobic by heating (column 4, lines 10-18). The compound capable of converting light into heat can be an infrared absorbing dye or pigment (claims 3-4). The image forming layer comprising a cross-linking agent (claim 6). In Example 2, a dispersion comprising TiO_2, a tetramethylorthosilicate emulsion in water (crosslinker), polyvinylalcohol, IR-2 (infrared dye) and the diazosulphonate copolymer P20 was coated on aluminum substrate, dried, hardened by heating and imaged using a CREO 3244 TRENDSETTER™ (column 11, lines 19-37). The wavelength of the CREO 3244 TRENDSETTER™ is not given but according to Van Damme et al. it is within the range of 700-1500nm (column 9, lines 50-59). The printing plate of Van Damme et al. meets the present limitations for the lithographic printing plate wherein the hardened hydrophilic binder meets the present limitations for the hydrophilic polymer, the

infrared dye IR-2 meets the limitations for the light absorbing compound and the a tetramethylorthosilicate emulsion meets the limitations for the cross-linking agent.

b. It is clear from the teachings of Van Damme et al. that a hydrophilic phase and hydrophobic phase are present in the heat-sensitive layer taught therein. The heat sensitive layer is a hydrophilic layer containing the hardened hydrophilic binder. The cross-linking agent, added to the other components of the layer via an aqueous emulsion, forms the hydrophobic phase (Example 2). It is noted that the crosslinker of Van Damme et al. is not a polymer. However it is not clear if the hydrophobic phase of the present invention contains an actual polymer. See paragraph 7a.

c. According to the current specification, the gas which causes foaming is presumed to be generated when the polymerizable functional groups of the cross-linking agent contained in the hydrophobic polymer phase remain in the photosensitive layer, and these residual functional groups undergo a reaction or decomposition to thereby generate a gas (page 32, line 19 – page 33, line 31). Van Damme et al. is silent with respect to any gases or foam generated however the heat-sensitive layer of Van Damme et al. has the same components as the photosensitive layer of the present application, specifically the cross-linking agent and the hydrophilic binder. Therefore the heat-sensitive layer of Van Damme et al. is expected to foam in the same manner as the present application.

Response to Arguments

11. Applicant's arguments filed March 1, 2005 and February 1, 2005 have been fully considered but they are not fully persuasive.

a. The rejections over Leon et al. (US 6,190,830 B1) and Van Damme et al. (US 6,096,471) are maintained upon further consideration. Once again the claims do not specifically state that a hydrophobic polymer is present in the photosensitive layer as argued. See also the last paragraph of page 13 of the Remarks filed August 9, 2004 wherein Applicant the photosensitive composition is discussed and it is said a hydrophobic polymer is present therein. The crosslinking agents of Leon et al. and Van Damme et al. are clearly not polymers. Therefore if Applicant were to amend the claims so that it is clear a hydrophobic polymer is in the photosensitive composition, the rejections would be withdrawn in addition to the rejection under 35 USC 112, 2nd paragraph.

b. With respect to Verschueren et al., Applicant argued that the claimed photosensitive composition does not contain metal oxide particles as an essential component and that claims 2, 3 and 37 were amended to state that the recited photosensitive composition "consists essentially of" the recited components which do not include metal oxide particles. The Examiner maintains the reference anticipates the claimed invention. According to MPEP 2111.03, the transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355. (See also *AK Steel Corp. v. Sollac,*

344 F.3d 1234, 1240-41, 68 USPQ2d 1280, 1283-84 (Fed. Cir. 2003). If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA 1964).

Allowable Subject Matter

12. Claims 5, 17, 26, 34 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

a. There is no teaching or suggestion in Verschueren et al. (US 6,230,621 B1) to specifically use hydrophobic thermoplastic particles having a film forming temperature of not higher than 50° C as required in the present claims. The hydrophobic thermoplastic polymer particles of Verschueren et al. preferably have a coagulation temperature above 50° C. Coagulation may result from softening or melting of the thermoplastic polymer particles under heat (column 3, lines 1-31).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara L. Gilliam whose telephone number is 571-272-

1330. The examiner can normally be reached on Monday through Thursday, 8:00 AM - 5:30 PM.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

b. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Barbara L. Gilliam

Barbara L. Gilliam
Primary Examiner
Art Unit 1752

bg
April 4, 2005